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Demographic and Clinical Characteristics of Patients Diagnosed with Colorectal Cancer: Six-Year Experience

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Abstract. Background: Cancer is the second cause of death after cardiovascular disease all over the world. Colorectal cancer, as one of the leading cause of cancer deaths, is the third most common cancer in men and the second most common cancer in women. Determination of the demographic and clinical characteristics of colorectal cancer is critical for early diagnosis and treatment of the disease. Aim: To investigate the epidemiological and clinical characteristics of patients with colorectal cancer at medical oncology clinic of Atatürk University. Study Desing: Cross-sectional study. Methods: The study was conducted in hospitalised male, and female patients with colorectal cancer admitted to our clinic from 2010 to 2016. Information such as the demographic characteristics (age, sex, etc.) of the patients, the place they live in, the location of the tumor, the results of pathologic evaluation, the stage of the cancer, the presence of metastasis, chemotherapy and radiotherapy were obtained from the hospital automation system and the patient's inpatient and outpatient files. The study included only patients who were diagnosed and followed up in our clinic. Information on survival status and the date of death were reached from Death Notification System. Results: In our study, 269 patients with colorectal cancer were evaluated. 50.6% of the patients are male, 49.4% female. The mean age was 58.9±14 (29-91) in males and 58.2 ± 14.7 (19-91) in females. 27.9% of patients had a history of smoking whereas 2.2% had a history of alcohol use. The most common subtype was adenocarcinoma (49.4%). The most common site (39.4%) was rectum, and (16.7%) was sigmoid colon. Of the patients, 53.1% were metastatic, and liver metastasis was the most common (44.7%). The most common symptom in patients receiving colorectal cancer was abdominal pain (29%). 32.3% patients underwent palliative surgery. 28.3% patients had comorbid disorder and 4.5% were accompanied by another malignancy. 49.4% of the patients had stage 4, 26% stage 3, 10.8% stage 2, 2.2% stage 1 and 0.4% intramucosal carcinoma. CEA levels were mostly 0-5 ng/Ml (46.1%). CA 9-19 level was mostly 0-40 U/ml (56,5%). Of the patients, 85.5% received chemotherapy and 19% received radiotherapy. Conclusion: There is no effect of sex, smoking and alcohol use, pathologic typing, tumor location, symptoms of arrival, comorbid disorder at survival. Age, presence of distant metastasis, history of operation, CEA and CA 19-9 levels, chemotherapy and radiotherapy status were found to be effective on survival.

1. Introduction

Cancer is the second cause of death after cardiovascular disease all over the world [1]. Colorectal cancer, as one of the leading cause of cancer deaths, causes about 694 000 deaths per year [2]. Colorectal cancer is

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the third most common cancer in men (after lung and prostate cancer) and the second most common cancer in women (after breast cancer). There are about 1.360 000 new cases annually and constitutes 10% of total cancer in the world. In recent years, the most appropriate method for screening in the normal population (those aged 54-70 years, without colorectal cancer family history) is to have stool occult blood test every year or every two years, flexible sigmoidoscopy every 5 years and colonoscopy every 10 years [3]. The symptoms of colorectal cancer vary according to the localisation of a tumour. Cancer from the ascending colon and cecum can reach rather large sizes without producing any obstructive symptoms or the change in bowel habits. Patients with colorectal cancer in that localisation often have nonspecific symptoms such as fatigue, palpitation, and angina due to chronic and insidious blood loss. Patients with colorectal cancer during that period often have nonspecific symptoms such as fatigue, palpitation, and angina due to chronic and occult blood loss. Anemia of iron deficiency in blood sample and positivity in fecal occult blood test may be seen in laboratory findings. Patients with cancer from transverse colon and descending colon can grow inside the colon lumen and may cause abdominal cramps, obstruction or even perforation symptoms. Cancers that are located in the rectosigmoid region produce symptoms such as hematochezia, tenesmus and thinning in the faeces diameter [4]. Approximately half of the patients have metastases during follow-up. 25% of patients have liver metastasis, the most common metastatic site of colorectal cancer, at the time of diagnosis [5]. The prognosis of metastatic colorectal cancer is poor, and the 5-year survival rate is 5-13% [6]. Inhere, we aimed to investigate the epidemiological and clinical profiles of a sample of patients with colorectal cancer at our medical oncology clinic.

2. Material and Methods

The study was conducted in hospitalised male, and female patients with colorectal cancer admitted (diagnosed histopathologically) to the Medical Oncology Clinic, Atatürk University Medical Faculty Hospital from 1 January 2010 to 31 December 2015. Inpatient and outpatient records of all patients were reviewed retrospectively. The study included only patients who were diagnosed and followed up in our clinic. Information such as the demographic characteristics (age, sex, etc.) of the patients, the place they live in, the location of the tumor, the results of pathologic evaluation, the stage of the cancer, the presence of metastasis, chemotherapy and radiotherapy were obtained from the hospital automation system and the patient's inpatient and outpatient files. Information on whether the patients were alive or dead and the date of death were reached by the Death Notification System of the Ministry of Health. The study was carried out according to the principles of the Declaration of Helsinki and approved by the local ethical committee (24.10.2016-6-09).

2.1. Statistical Analysis

SPSS 20.0 (SPSS Inc. Chicago, IL, USA) program was used to analyse the data. Data are presented as the number, percent, median, mean, standard deviation and standard error. Mann-Whitney test, Kruskal Wallis test and Post Hoc test were used for statistical analysis. The statistical significance level was taken as $p < 0.05$.

3. Results

Of the 269 colorectal cancer patients who were taken into the study, 136 (50.6%) were male and 133 (49.4%) were female. The mean age was 58.5±14.3 (19-91) years. The mean age was 58.9± 14(29-91) in males and 58.2±14.7 (19-91) in females. The distribution of histological subtypes and stage of colorectal cancer, the location of tumours, surgical treatment status, co-morbid disease status, CEA and CA 19-9 levels (at diagnosis) are summarised in Table 1. In Table 1, the properties of these variables are given in numbers and percentages. In Table 2, admission symptoms of the patients with colorectal cancer were shown. Of the patients whose smoking status was known, 27,9% (n=75) had a history of smoking and 64,7% (n=174) had no history of smoking. Of the patients whose using alcohol status was known, 2.2% (n=6) had a history of using alcohol and 90,3% (n=243) had no history of using alcohol. The smoking and using alcohol status

of 20 patients was unknown. Symptoms of patients with colorectal cancer were abdominal pain (n=78, 29%), constipation (n=59, 21.9%), bleeding from the rectum (n=39, 14,5%), pain in back passage (n=11, 4,1%), weight loss (n=10, 3,7%), constipation+abdominal distension (n=9, 3,3%), abdominal swelling (n=8, 3%), diarrhoea (n=5, 1,9%), weakness (n=4, 1,5%), jaundice (n=3, 1,1%), lumbar pain (n=1, 0,4%), faecal incontinence (n=1, 0,4%), and various combination of these symptoms at the admission to the hospital. Twenty-five patients had no information about admission to the hospital. Comorbid diseases (malignancy) were breast cancer (n=3, 1.1%), prostate cancer (n=2, 0.7%), stomach cancer and chronic myeloid leukemia (n=1, 0.37, together), bladder cancer (n=1, 0.37%), endometrium cancer (n=1, 0.37%), over cancer (n=1, 0.37%), basal cell carcinoma (n=1, 0.37%), thyroid cancer and intraabdominal carcinoma. Of the 143 metastatic patients, 60 (44,7%) had liver metastases and 17 (12,6%) had abdomen metastases (omentum, peritoneum, the abdominal wall), whereas metastases were observed in various combinations (including liver, lung, abdomen, bladder, bone, adrenal gland, over, brain, endometrium) in other metastatic patients. 15 patients the site of metastases could not be determined. Mean survival was 40 months in non-distant metastases, whereas 17.3 months in patients with distant metastases. Mean survival was 40 months in patients with non-distant metastases, whereas 17.3 months in patients with distant metastases. Received cycles of chemotherapy and patient numbers were as follows; 1 cycle 82 (30.5%) patients, 2 cycles 63 (23.4%) patients, 3 cycles 26 (9.7%) patients, 4 cycles 28 (10.4%) patients, 5 cycles 15 (5.6%) patients, 6 cycles 9 (3.3%) patients, 7 cycles 2 (0.7%) patients, 8 cycles 4 (1.5%) patients, and 9 cycles 1 (0.4%) patients. Seven patients (2.6%) did not receive chemotherapy, and there were no data on chemotherapy for 32 (11.9%) patients. The mean survival time of patients with colorectal cancer was 26.4±24.1 (1-168) months, whereas it was found 26.4±21.9 months for males and 26.3±26.4 months for females. Demographic and clinical variables were compared according to survival status (survived or died). There were no statistical differences concerning age, gender, using alcohol status, smoking status, histopathologic subtypes of cancer, localisation of a tumour, comorbid status ($p > 0,05$). There was a significant difference in survival between the patients who underwent surgery and didn't undergo surgery ($p = 0,02$). The mean survival time was 39.1 months in the patients with curative surgery whereas it was 19.9 months in the patients with palliative surgery ($p < 0.001$). Initially, of the 269 patients with colorectal cancer, 218 (81%) received radiotherapy, while 51 (19%) didn't receive radiotherapy. In patients had radiotherapy, the mean survival was 41.3 months, whereas in patients had no radiotherapy, it was 22.7 months ($p < 0.001$). It was observed that patients who received 7-cycles chemotherapy live longer than patients who received other serial chemotherapy ($p < 0.001$). In patients receiving 7-cycles chemotherapy, mean survival was found 90 months, whereas was found 17 months in patients receiving 1-cycle. Mean survival was 22 months in 5 patients who did not receive chemotherapy. Patients who did not have distant metastasis were observed to live longer than patients who had distant metastasis ($p < 0.001$). Patients with CEA levels 0-5 were found to have significantly higher survival times in patients with CEA levels between 100-1000 ($p = 0.001$).

4. Discussion

Cancer is the second most common cause of death after cardiovascular disease, according to the World Health Organization data. Colorectal cancers, the 4th most frequent cancer of all cancers, have a rate of 9 %, preceded by lung cancer, breast cancer and prostate cancer. This rate differs according to countries and races. Colorectal cancers are more common in European countries and the United States, and less frequently in Asian and African countries [7]. Also, recent studies have shown that colorectal cancer is the third most common cancer in both women and men in Turkey [8]. Colorectal cancers are more common in men than in women. This gender difference of colorectal cancer is not very obvious. Boyle et al. reported that colorectal cancer is 1.1 times more common in male than in females [9]. The findings of our study support these results. Another risk factor for colorectal cancer is advanced age. In a systematic review, it has been reported that colorectal cancers reach a peak during the 7th decade of life [10]. In the present study, colorectal cancers increased with increasing age, and it was found mostly in the age range of 70-80 years. Smoking plays an important role in etiology of many cancers, including colorectal cancer. In two case-control studies conducted in the Turkish population, the rate of smoking in the patients with colorectal was found to be higher than the controls [11, 12]. The findings of our study were not consistent

with these results. The frequency of smoking (27%) in our study was found to be similar to the general population, according to the Turkish Statistical Institute data for 2016 [13]. Alcohol is also known to trigger cancer and have a carcinogenic effect. Colon and rectum cancer are among the cancers caused by alcohol. Studies emphasise the total amount of alcohol consumed daily is more important than the variety of alcohol consumed. Alcohol consumption in the Turkish population is one-third of the world average [14]. In our study, alcohol consumption rate was found low in colorectal cancer patients. In the country where this study is done, it is reported that adenocarcinoma is the most common colorectal cancer subtype in many studies [15–18]. We found that adenocarcinoma was the most common subtype. Approximately 30% of all colorectal cancers are located in the rectum, and 20% are located in the sigmoid colon [19–21]. In this study, it was observed that 106 (39,4%) of the cancer cases were located in the rectum and 45 (16,7%) were located in the sigmoid colon. The results of our study were consistent with the literature. It was also found that there was no significant survival effect of the cancer subtype and primary tumour site. Mehrkhani et al. reported that distant metastasis is the most important factor that worsens survival prognosis [22]. We also found that distant metastasis worsened the prognosis. The mean survival for patients without distant metastasis was 40 months, while it was 17.3 months for patients with distant metastases. Early diagnosis in patients with colorectal cancer is critical in terms of treatment and survival time. Therefore, it is important to evaluate the complaints of patients and to use appropriate diagnostic methods. Changes in bowel habit, weight loss, bloody mucus diarrhea and anaemia are the most frequent complaints of colorectal cancer [23, 24]. The most common complaints in this study were abdominal pain, constipation and rectal bleeding, respectively. Resection of primary tumour in colorectal cancers significantly improves survival. Ruo et al. suggested that primary tumour resection of even in patients with distant organ metastasis [25]. In addition, Ruo et al. said that patients with colorectal cancer who were initially treated without bowel resection, need subsequent operations for complications. In this study, mean survival times in patients with the operation were found to be approximately 5 times those of patients without operation history. In patients operated for curative purposes, the survival time was approximately 2 times longer than patients operated for palliative purposes. The pathologic stage has repeatedly been reported as an important prognostic factor by many investigators. Newland et al. said that survival worsened with increasing pathologic stage [26]. Survival time was 113.3 months in patients with stage 1, 36.7 months in patients with stage 2, 17.4 months in patients with stage 3 and 34.9 months in stage 4, according to the oncologist's the initial diagnosis. The survival of one patient evaluated as stage 0 intramucosal carcinoma was 61 months and comorbid diseases were considered to affect survival (i.e. chronic renal failure, diabetes mellitus and hypertension). The patient died due to an acute episode of chronic renal failure. In the study conducted by Shikhani, the risk of developing second cancer in primer-tumour cases was found 1.29 times higher than in healthy individuals [27]. These study findings showed that there was no significant difference between those who had the comorbid disorder as malignancy and those who did not have. These results suggest that colon cancer is the determinant of cancer deaths in patients with multiple malignancies. Approximately 60-70% of colorectal cancer patients have a high CEA level in serum. The sensitivity and specificity of serum CEA were reported 55%-89% and 75%-98%, respectively. Serum CEA has been shown to detect recurrence of colorectal cancer before periodic clinical examinations, other laboratory tests, radiographic imaging [28]. In our study, the CEA level at the time of admission was found to be 0-5 in 124 (46.1%) of the patients. There was a significant difference between CEA levels concerning survival. Mean survival was found 32.4 months in patients with CEA levels< 5 ng/mL (low) whereas was found 16 months in patients with CEA levels¿1000ng/mL (high). In the present study, the levels of CA 9-19 were also similar to these results. In the randomised study with advanced colorectal cancer patients, the median survival time was found 11 months in the chemotherapy group and 5 months in the supportive treatment group [5]. Patients receiving higher chemotherapy (7 cycles) had longer survival times than patients receiving lower chemotherapy (1 cycle). The mean survival time of 5 patients who had never received chemotherapy was approximately 2 years.

Table 1. Distribution of clinic characteristics related to colorectal cancer

Histologic subtype (n=269)		Localization (n=269)		Operation (n=269)		Stage (n=269)		Comorbid disease (n=269)	
n (%)		n (%)		n (%)		n (%)		n (%)	
Adenocarcinoma-NOS	133 (49.4%)	Rectum	106 (39.4%)	Palliative	87 (32.3%)	Intramucosal carcinoma	1 (0.4%)	Non-malignancy	64 (23.8%)
Moderately differentiated adenocarcinoma	53 (19.7%)	Sigmoid colon	45 (16.7%)	Curative	49 (18.2%)	Stage 1	6 (2.2%)	Malignancy	12 (4.5%)
Mucinous adenocarcinoma	29 (10.8%)	Common kolon	34 (12.6%)	Unknown purpose	41 (15.2%)	Stage 2	29 10.8%)	Unknown	24 (8.9%)
Low differentiated adenocarcinoma	10 (3.7%)	Cecum	29 (10.8%)	Unknown	20 (7.4%)	Stage 3	70 (26%)	Non-comorbid disease	169 (62.8%)
Malignant epithelial tumor	7 (2.6%)	Ascending colon	22 (8.2%)	Total	197 (73.2%)	Stage 4	133 (49.4%)		
Signet ring cell carcinoma	4 (1.5%)	Transverse colon	12 (4.5%)	Non-operation	72 (26.8%)	Unknown	30 (11.2%)		
Intramucosal carcinoma	4 (1.5%)	Rectosigmoid kolon	5 (1.9%)	CA levels (n=269)		CA 19-9 levels (n=269)			
Neuroendocrine	3 (1.1%)	Appendix colon	3 (1.1%)	0-5	124 (46.1%)	0-40	152 (56.2%)		
Well differentiated adenocarcinoma	2 (0.7%)	Unknown	13 (4.8%)	5-10	24 (8.9%)	40-100	32 (11.9%)		
Intraepithelial carcinoma	1 (0.4%)			10-20	12 (4.5%)	100-1000	33 (12.3%)		
Desmoid tumor	1 (0.4%)			20-100	32 (11.9%)	1000	16 (5.9%)		
GIST	1 (0.4%)			100-1000	33 (12.3%)	Unknown	36 (13.4%)		
Unknown	21 (7.8%)			1000 over	9 (3.3%)				
				Unknown	35 (13%)				

n/%=number/percent, NOS: Not specified otherwise GIST: Gastrointestinal Stromal Tumor

Table 2. Admission symptoms of the patients with colorectal cancer

Admission Symptoms (n=269)	
Abdominal Pain	78 (29%)
Constipation	59 (21.9%)
Rectal Bleeding	39 (14,5%)
Anal Pain	11 (4.1%)
Weight Loss	10 (3.7%)
Abdominal Distension	8 (3%)
Diarrhea	5 (1.9%)
Jaundice	2 (0.7%)
Back Ache	1 (0.4%)
Feces in Urine	1 (0.4)

5. Conclusion

As a result, the organisation of screening programs may be considered in future for the early diagnosis of colorectal cancers, which are common in our country and have high mortality. Future studies will provide more information about the demographic and clinical characteristics of patients with colorectal cancer.

6. Conflict of interest

No conflict of interest was declared by the authors.

7. Financial Disclosure

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